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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/658,275	09/08/2000	James C. Solinsky	3826-2	3667

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EXAMINER	
SHARON, AYAL I	

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 08/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/658,275	SOLINSKY, JAMES C.	
	Examiner	Art Unit	
	Ayal I. Sharon	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35,37-38,40-56* is/are rejected.

7)☒ Claim(s) *36 and 39* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. Claims 1-56 of U.S. Application 09/658,275, originally filed on 09/08/2000, are presented for examination. The application claims benefit of provisional application 60/215,762, filed 6/30/2000. In the RCE dated 6/1/2005, the applicant has amended claims 1, 5-9, 12-18, 20, 25, 28, 33, 35 and 48-52. New claims 53-56 have been added.
2. Applicant persuasively argues (See p.15 of the "Remarks" section in the Amendment filed with the RCE on 6/1/2005) that "... claims 1, 9, 17, 25 and 32 have been amended to specify 'a user memory model' in the context of the claimed systems and methods. This feature is believed to distinguish over the applied documents and any combinations thereof." Examiner agrees, and has applied new art rejections.

Allowable Subject Matter

3. Claims 36, 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
4. In regards to Claim 36, Lawrence does not expressly teach the following limitations:

Claim 36 (Previously Presented): The method according to claim 35, wherein the objects in the object space include objects of two or more different object classes.

5. In regards to Claim 39, does not expressly teach the following limitations:

Claim 39 (Previously Presented): The method according to claim 35, wherein the object space is at least partially orthogonal.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The prior art used for these rejections is as follows:

8. Lawrence et al., U.S. Patent 6,038,337. (Henceforth referred to as "**Lawrence**").

9. **Claims 1-35, 37-38, and 40-56 are rejected under 35 U.S.C. 102(b) as being anticipated by Lawrence.**

10. In regards to Claim 1, Lawrence teaches the following limitations:

1.A method of generating output signals in response to real world stimulation comprising:

capturing concurrent user inputs that are responsive to training stimulation;
(See Lawrence, especially: Fig.1, Item 100 and associated text)

storing a model representing a synthesis of the captured user inputs; and
(See Lawrence, especially: Fig.2, Item 200 and associated text)

using the stored model to generate output signals in response to real-world stimulation.
(See Lawrence, especially: Fig.2, Item 270 and associated text)

11. In regards to Claim 2, Lawrence teaches the following limitations:

2.The method according to claim 1, further comprising:

using a forced choice interaction to generate one or more additional user inputs;

Lawrence teaches (see col.4, lines 54-57) that "During training, each input, x, is compared to all the m_i, obtaining the location of the closest match according to a particular metric."

Examiner finds that that corresponds to the claimed "forced choice".

capturing the additional user inputs; and
incorporating the additional user inputs into the model.

(See Lawrence, especially: col.4, lines 58-65)

12. In regards to Claim 3, Lawrence teaches the following limitations:

3.The method according to claim 1, wherein the model comprises a worldline of linked object diagram exemplars in an N-dimensional space.

(See Lawrence, especially: col.5, lines 30-35)

13. In regards to Claim 4, Lawrence teaches the following limitations:

4. The method according to claim 1, wherein

the real world stimulation comprises concurrent user inputs that are compared to the stored model, and
the output signals are based on the results of the comparison.

Lawrence teaches (see col.4, lines 54-57) that "During training, each input, x, is compared to all the m_i, obtaining the location of the closest match according to a particular metric."

14. In regards to Claim 5, Lawrence teaches the following limitations:

5. The method according to claim 1, wherein the method is performed at least partly in accordance with computer-executable instructions stored on a computer-readable medium.

It is inherent that the algorithms taught by Lawrence can be implemented in either hardware or software. Examiner notes that according to Andrew Tanenbaum's Structured Computer Organization, p.11:

> A central theme of this book that will occur over and over again is:
>
> *Hardware and software are logically equivalent.*

> Any operation performed by software can also be built directly into the hardware and any instruction executed by the hardware can also be simulated in software. The decision to put certain functions in hardware and others in software is based on such factors as cost, speed, reliability, and frequency of expected changes.

15. In regards to Claim 6, Lawrence teaches the following limitations:

> 6. The method according to claim 1, wherein the method is performed at least partly by a hardware processing engine.

It is inherent that the algorithms taught by Lawrence can be implemented in either hardware or software. Examiner notes that according to Andrew Tanenbaum's Structured Computer Organization, p.11:

> A central theme of this book that will occur over and over again is:
>
> *Hardware and software are logically equivalent.*
>
> Any operation performed by software can also be built directly into the hardware and any instruction executed by the hardware can also be simulated in software. The decision to put certain functions in hardware and others in software is based on such factors as cost, speed, reliability, and frequency of expected changes.

16. In regards to Claim 7, Lawrence teaches the following limitations:

> 7. The method according to claim 1, wherein the method is performed at least partly by an application specific integrated circuit.

It is inherent that the algorithms taught by Lawrence can be implemented in either hardware or software. Examiner notes that according to Andrew Tanenbaum's Structured Computer Organization, p.11:

> A central theme of this book that will occur over and over again is:
>
> *Hardware and software are logically equivalent.*
>
> Any operation performed by software can also be built directly into the hardware and any instruction executed by the hardware can also be simulated in software. The decision to put certain functions in hardware

and others in software is based on such factors as cost, speed, reliability, and frequency of expected changes.

17. In regards to Claim 8, Lawrence teaches the following limitations:

8. The method according to claim 1, wherein the method is performed at least partly by a net list integrated into other integrated circuits.

It is inherent that the algorithms taught by Lawrence can be implemented in either hardware or software. Examiner notes that according to Andrew Tanenbaum's Structured Computer Organization, p.11:

> A central theme of this book that will occur over and over again is:
>
> *Hardware and software are logically equivalent.*
>
> Any operation performed by software can also be built directly into the hardware and any instruction executed by the hardware can also be simulated in software. The decision to put certain functions in hardware and others in software is based on such factors as cost, speed, reliability, and frequency of expected changes.

18. Claims 9-16, 17-24, and 25-32 are rejected based on the same reasoning as claims 1-8, *supra*.

a. Claims 9-16 are method claims reciting the equivalent limitations as are recited in method claims 1-8 and taught throughout Lawrence. The preamble to Claim 9 recites "control command stimulation" as opposed to the "real world stimulation" of claim 1, however, a "control command stimulation" inherently takes place in the "real world".

b. Claims 17-24 are system claims reciting the equivalent limitations as are recited in method claims 1-8 and taught throughout Lawrence.

c. Claims 25-32 are system claims reciting the equivalent limitations as are recited in method claims 1-8 and taught throughout Lawrence. The

preamble to Claim 25 recites "control command stimulation" as opposed to the "real world stimulation" of claim 1, however, a "control command stimulation" inherently takes place in the "real world".

19. In regards to Claim 33, Lawrence teaches the following limitations:

Claim 33 (New):A method of generating output signals in response to real world stimulation comprising:

capturing two or more simultaneous user user inputs that are responsive to training stimulation;
(See Lawrence, especially: Fig.1, Item 100 and associated text)

synthesizing the captured user inputs through a dynamic, model-based response generation from the captured user inputs with correlated congruence to two or more data input channels;
(See Lawrence, especially: Fig.2, Item 200 and associated text)

storing the user memory model representation of the synthesis generation as mapped into an N--dimensional representation; and
(See Lawrence, especially: col.5, lines 30-35)

using the stored model to generate output signals in response to real world stimulation through temporally sensitive similarity matching.
(See Lawrence, especially: Fig.2, Item 270 and associated text)

20. In regards to Claim 34, Lawrence teaches the following limitations:

Claim 34 (Previously Presented): The method according to claim 33, further comprising:

using a forced choice interaction of dynamic temporal events to generate one or more additional simultaneous user inputs, which are physically/mentally linked pattern responses;

capturing the additional user inputs; and

incorporating the additional user inputs into the model.

Lawrence teaches (see col.4, lines 54-57) that "During training, each input, x, is compared to all the m_i, obtaining the location of the closest match according to a particular metric."

Examiner finds that that corresponds to the claimed "forced choice".

21. In regards to Claim 35, Lawrence teaches the following limitations:

Claim 35 (Currently Amended): A method of generating outputs in response to real world stimulation comprising:

receiving two or more simultaneous inputs supplied by a user in response to training stimulation;
(See Lawrence, especially: Fig.1, Item 100 and associated text)

generating an N-dimensional object space representing a synthesis of the simultaneous user inputs, wherein the object space comprises a plurality of objects and object links between the objects;
(See Lawrence, especially: Fig.2, Item 200 and associated text)

mapping the N-dimensional object space to one or more M-dimensional sub-spaces to compare the object space representing the synthesis of the simultaneous user inputs to subsequently received simultaneous user inputs; and
(See Lawrence, especially: col.5, lines 30-35)

generating output signals in response to the comparing.
(See Lawrence, especially: Fig.2, Item 270 and associated text)

22. In regards to Claim 37, Lawrence teaches the following limitations:

Claim 37 (Previously Presented): The method according to claim 36, wherein the object links comprise worldlines each connecting the objects of a respective one of the different classes.
(See Lawrence, especially: "Self-Organizing Map", Fig.2, Item 200 and associated text)

23. In regards to Claim 38, Lawrence teaches the following limitations:

Claim 38 (Previously Presented): The: method according to claim 36, wherein the different object classes correspond to different user training sessions.
(See Lawrence, especially: "Self-Organizing Map", Fig.2, Item 200 and associated text)

24. In regards to Claim 40, Lawrence teaches the following limitations:

Claim 40 (Previously Presented): The method according to claim 35, wherein N>3.
(See Lawrence, especially: col.5, lines 30-35)

25. In regards to Claim 41, Lawrence teaches the following limitations:

Claim 41. (Previously Presented): The method according to claim 35, wherein the N-dimensional space is mapped to the one or more M-dimensional sub-spaces using subspace projection operators.
(See Lawrence, especially: col.5, lines 30-35)

26. In regards to Claim 42, Lawrence teaches the following limitations:

Claim 42 (Previously Presented): The method according to claim 41, wherein the subspace projection operators project densities to the M-dimensional space.
(See Lawrence, especially: col.5, lines 30-35)

27. In regards to Claim 43, Lawrence teaches the following limitations:

Claim 43 (Previously Presented): The method according to china 42, wherein the subspace projection operators project the densities onto axes of the object space model.
(See Lawrence, especially: col.4, lines 30-57)

28. In regards to Claim 44, Lawrence teaches the following limitations:

Claim 44 (Previously Presented): The method according to claim 42, wherein the subspace projection operators include subspace projection operators for obtaining attribute densities.
(See Lawrence, especially: col.4, lines 30-57)

29. In regards to Claim 45, Lawrence teaches the following limitations:

Claim 45 (Previously Presented): The method according to claim 42, wherein the subspace projection operators include subspace projection operators for obtaining object link densities.
(See Lawrence, especially: col.4, lines 30-57)

30. In regards to Claim 46, Lawrence teaches the following limitations:

Claim 46 (Previously Presented): The method according to claim 35, wherein the object links comprise a worldline connecting the objects.
(See Lawrence, especially: col.4, lines 30-57)

31. In regards to Claim 47, Lawrence teaches the following limitations:

Claim 47 (Previously Presented): The method according to chino 35, wherein the subsequently received simultaneous user inputs are provided in response to a forced choice interaction with the user.

Lawrence teaches (see col.4, lines 54-57) that "During training, each input, x, is compared to all the m_i, obtaining the location of the closest match according to a particular metric."

Examiner finds that that corresponds to the claimed "forced choice".

32. Claims 48-51 are rejected for the same reasons as claims 5-8 are rejected above.

33. In regards to Claim 53, Lawrence teaches the following limitations:

Claim 53 (New): The method according to claim 35, wherein the output signals comprise display signals.

(See Lawrence, especially: col.4, lines 3-5)

It is inherent that the "image classification data" can be displayed, or used as an input for another process.

34. In regards to Claim 54, Lawrence teaches the following limitations:

Claim 54 (New): The method according to claim 35, wherein the output signals comprise control signals.
(See Lawrence, especially: col.4, lines 3-5)

It is inherent that the "image classification data" can be displayed, or used as an input for another process.

35. Claims 52 and 55-56 are rejected based on the same reasoning as claims 35 and 53-54, *supra*. Claims 52 and 55-56 are system claims that recite equivalent limitations to those recited in claims 35 and 53-54.

Response to Amendment

Re: Drawings

36. The objections to the drawings have been withdrawn.

Re: Claim Objections

37. Claims 5-8, 13-16 and 48-51 were objected to because they were apparatus claims that depend from method claims. Applicants have rewritten these claims as method claims. The objections to these claims are therefore withdrawn.

Re: Double Patenting

38. Applicant states that he has expressly abandoned the co-pending U.S. Application 09/658,276 (See p.13, para.2, of the "Remarks" section in the

Amendment filed on 6/1/2005). Examiner has confirmed that this is correct. The double patenting rejections of these claims based on the '276 application are therefore withdrawn.

Re: Claim Rejections - 35 USC § 112

39. The previous Office Action contained 35 USC § 112 first paragraph rejections of claims 6-8, 14-16, 22-24, 29-31, and 49-51 on the grounds that the specification "does not reasonably provide enablement for an integrated circuit or 'hardware processing engine'". Examiner has found applicant's arguments (See pp.13-14 of the "Remarks" section in the Amendment filed on 6/1/2005) to be persuasive, in particular the references to the article by Christian Peter, "Overview: Hardware Compilation and the Handel-C language". Therefore, these rejections have been withdrawn.

40. The previous Office Action contained 35 USC § 112 second paragraph rejections of claims 1-52 on the grounds that it was not clear what were the output signals of these claims. The Applicant has amended these claims to read "... generate output signals ..." instead of the original "... generate output signals ..." (See pp.14-15 of the "Remarks" section in the Amendment filed on 6/1/2005). Examiner finds this amendment to be sufficient for overcoming the 35 USC § 112 second paragraph rejections. These rejections have been withdrawn.

Conclusion

41. In addition to the Lawrence reference, which has been applied in the art rejections, Examiner wishes to bring the Griffin reference (U.S. Patent 6,920,231) to Applicant's attention. Examiner notes that the Griffin reference has a filing date of 6/30/05, which is the priority date of the instant application. If the claims in the instant application reach a condition for allowance, the Griffen reference should be reviewed for the purpose of a possible interference.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (703) 306-0297. The examiner can normally be reached on Monday through Thursday, and the first Friday of a biweek, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached on (703) 305-9704. Any response to this office action should be mailed to:

Director of Patents and Trademarks
Washington, DC 20231

Hand-delivered responses should be brought to the following office:

4th floor receptionist's office
Crystal Park 2
2121 Crystal Drive
Arlington, VA

Fax: (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, whose telephone number is: (703) 305-3900.

Ayal I. Sharon

Art Unit 2123

August 10, 2005

LEO PICARD
SUPERVISORY PATENT EXAMINER
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